

City Manager Approval

Date

1.0 PURPOSE

1.1 BACKGROUND

The Confined Space Entry Program establishes methods for safely evaluating and entering confined spaces as required by California Code of Regulations, Title 8, sections 5156, 5157, and 5158.

1.2 SCOPE

This policy applies to all departments that have personnel who enter confined spaces. This Confined Space Entry Program shall apply to all City departments and offices directly responsible to the City Manager. It is also requested that elective offices and other independent offices and departments comply with the Confined Space Entry Program in the interest of administrative uniformity.

1.3 POLICY

It is the policy of the City of Long Beach to comply with all aspects of the Cal/OSHA requirements for confined space entry and rescue. Employees that may enter confined spaces must be trained before they may act as an entry lead person for confined space entry, act as an attendant for a confined space entry, enter a confined space, act as a standby person, or attempt a confined space rescue. No exceptions to this policy may be made.

2.0 DEFINITIONS

2.1 Alternate Entry Procedure: A procedure (see section 4.2.3 of this document) that may be used if the only hazard present in the confined space (as determined by the entry lead person) is:

- Atmospheric in nature, and
- The atmospheric hazard **can be controlled** by mechanical ventilation alone, and
- The space atmosphere will not become immediately dangerous to life and health (IDLH) if the mechanical ventilation should fail.

2.2 Attendant: An employee who is trained in confined space entry and rescue procedures and has been assigned the responsibility of monitoring confined space operations. If the Entry Lead Person leaves the site, the Attendant is responsible for maintaining entry conditions as specified on the permit and must order an evacuation if permit conditions change.

2.3 Blanking or Blinding: Means the absolute closure of a pipe, line, or duct by the fastening of a solid plate that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

2.4 Confined Space: A confined space has the following characteristics:

- Is large enough for a person to enter and perform work,

- Entrance and exit is restricted (e.g., tanks, vessels, hoppers, vaults, pits, and trenches) and
 - Is not designed for continuous occupancy
- 2.5 Emergency: Means any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.
- 2.6 Engulfment: The surrounding and effective capture of a person by a liquid or finely divided solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.
- 2.7 Entrant: An employee trained in confined space entry procedures who has been assigned to enter a confined space.
- 2.8 Entry Lead Person: Any appropriately trained employee who has been assigned the responsibility of overseeing the confined space entry by their line supervisor (OSHA refers to this person as the “Entry Supervisor”).
- 2.9 Hot Work: Torch cutting, welding, and grinding, in regards to this policy, occurring within the confined space.
- 2.10 Hot Work Permit: Written form documenting the type of hot work to be performed in areas with ignition hazards, the special procedures employed to make the work safe, and the names of employees conducting the work and performing fire watch duties.
- 2.11 Isolation: The process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding, misaligning or removing sections of lines, pipes, or ducts, double block and bleed system, lockout or tagout of all sources of energy, or blocking or disconnecting all mechanical linkages.
- 2.12 Non-Permit Confined Space: Is a confined space that does not have any hazards (see section 4.2.4 of this document).
- 2.13 Permit Required Confined Space (or Permit Space): Permit spaces have any of the following characteristics:
- Contains or has a potential to contain a hazardous atmosphere,
 - Contains a material that has the potential for engulfing an entrant,
 - Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section, where the entrant could become trapped, injured, etc., or
 - Contains any other recognized safety or health hazard that cannot be eliminated.

- 2.14 Standby Person: An employee who is trained in confined space entry and rescue procedures and who assists the Attendant during permit space operations.

3.0 RESPONSIBLE PERSONS

3.1 DEPARTMENT HEAD

3.1.1 Department Heads shall:

- A. Ensure that the Confined Space Entry Program is implemented within their department. The Department Head has the authority to delegate any or all portions of the Confined Space Entry Program, but the Department Head is ultimately responsible for compliance with this program.

3.2 MANAGERS, SUPERINTENDENTS, AND SUPERVISORS

3.2.1 Managers, Superintendents, and Supervisors shall:

- A. Ensure that only properly trained employees enter a confined space.
- B. Collect and review confined space entry permits and maintain these permits for a period of 1 year.
- C. Develop a list of known confined spaces and their general classifications and update this list on an annual basis and inform employees of the confined spaces by posting appropriate signage.
- D. Ensure that equipment is readily available for employees to be able to safely enter a confined space.

3.3 CITY SAFETY OFFICER

3.3.1 City Safety Officer shall:

- A. Update and maintain the Confined Space Entry Program.
- B. Provide assistance in training employees for confined space entry.
- C. Assist managers, superintendents, and supervisors in proper classification of their confined spaces.
- D. Provide guidance, advice, and assistance to management to achieve compliance with this policy.

3.4 CONFINED SPACE ENTRY LEAD PERSON

3.4.1 Entry Lead Persons are responsible for:

- A. Ensuring that all personnel participating in a Permit Required and Alternate Confined Space Entry operation are trained in accordance with Section 9.
- B. Obtain authorization to complete an Entry Permit for each Permit Required Confined Space Entry from supervisor, and complete page one (1) of the permit.
- C. Determining the hazards of, and establishing control procedures for the confined space, and for classifying each confined space as requested by the Entry Permit.
- D. Ensuring that canceled and closed permits are returned to their section's management person for filing.

3.5 CONFINED SPACE ATTENDANT

3.5.1 Attendants are responsible for:

- A. Reviewing and understanding (with the Entry Lead Person, Entrant, and Standby Person(s)) the hazards of entry into the Permit Required Confined Space, including symptoms of exposure to toxic substances.
- B. Attending to the following responsibilities:
 - Obtaining, inspecting, and installing safety equipment as specified by the Entry Permit;
 - Entering required information on page 2 of the Entry Permit;
 - Keeping visual and/or audio contact with the Entrant at all times;
 - Not performing other duties that interfere with monitoring the Entrant(s);
 - Staying in position until relieved by another Attendant;
 - Tending the Entrant(s) retrieval device or safety line (*when required by the permit*);
 - Ensuring that lockout, blockout, or isolation of pipelines and equipment remain in place (*when required by the permit*);
 - Monitoring the air quality inside the permit space by using appropriate gas detection equipment;
 - Maintaining conditions to ensure that external hazards and unauthorized persons do not enter the space; and
 - Establishing and maintaining communication with the Standby Person who shall summon emergency services and assist in emergency rescue operations, when needed.
- C. Ordering an evacuation if he/she:
 - Detects a hazard such as a toxic release, potential engulfment, or equipment malfunction;
 - Detects symptoms of toxic exposure in an Entrant;
 - Detects a condition outside the permit space that could endanger Entrant(s), such as drifting vapors from tasks, piping, or sewers; or
 - Cannot effectively and safely perform all required duties.
- D. Performing non-entry retrievals as needed, provided the activity does not interfere with his/her primary duties as an Attendant, (but shall not participate in an entry rescue unless relieved by another trained Attendant (see Section 6).

3.6 STANDBY PERSON(S)

3.6.1 Standby persons are responsible for:

- A. Remaining at the entry area during the entire permit required confined space operation.
- B. Assisting in the maintenance of the safety controls specified by the permit.
- C. Performing duties as assigned by the Entry Lead Person or Attendant.

3.7 CONFINED SPACE ENTRANT

3.7.1 Confined space entrants are responsible for:

- A. Staying in contact (by sight, voice, or radio communication) with the Attendant when performing a Permit Required Confined Space entry.
- B. Exiting the space whenever he/she becomes aware of or detects a hazard such as toxic exposure, potential engulfment, or malfunctioning equipment.
- C. Using appropriate safety equipment as specified on the Entry Permit.
- D. Promptly obeying the safety instructions of the Attendant.

4.0 CONFINED SPACE ENTRY PROCEDURES

4.1 PRE-ENTRY PREPARATION

All confined spaces are to be evaluated by an Entry Lead Person prior to authorizing entry. An Entry Lead Person shall identify the hazards of the space. These include, but are not limited to:

- Pipelines that carry flammable, harmful, or incapacitating substances;
- Automatic fire suppression systems that use harmful chemicals or oxygen displacing substances;
- Potential engulfment;
- Potential for liberation of hydrogen sulfide;
- Potential for oxygen deficient or enriched atmospheres;
- Hazards introduced into the space such as solvents, coatings, or hot work;
- Fall hazards;
- Entanglement hazards; and
- A survey of the surrounding area for drifting vapors from tanks, piping, and/or sewers.

The Entry Lead Person shall classify the space by checking the appropriate box in Section 5 of the *Confined Space Entry Permit & Record Sheet* and completing the *Confined Space Pre-Entry Checklist* items on the permit prior to allowing entry into the permit space. The Entry Lead Person shall also ensure the following is completed:

- Oversee the setup of any safety equipment required by the permit, including blowers, SCBA, emergency escape devices, full body harness, tripods, and traffic control systems;
- Complete a Hot Work Permit if hot work is conducted in a confined space area with ignition hazards;
- Establish appropriate rescue procedures, specific to the confined space entry operation at hand, and list the procedures on the permit;
- Review the permit conditions, entry precautions, and rescue procedures with the Attendant, Standby Person, and the Entrant, prior to allowing entry into the permit space;
- Sign the permit to verify that appropriate safety precautions have been established and reviewed with the Attendant, Standby Person, and Entrant(s) prior to allowing entry; and
- Cancel the permit at the end of each work shift.

4.2 ENTERING A CONFINED SPACE

Each **permit required** confined space entry must have, at a minimum, one Attendant, one Standby Person, and an Entrant. Rescue equipment, as

indicated on the permit, shall be maintained at the space during the permit space operation. The Entrant shall wear retrieval equipment or wear an escape breathing device and use any other safety equipment as specified on the permit.

The Attendant shall verify that the entry conditions are acceptable. The Entrant shall enter and exit the space as directed by the Attendant. The Attendant shall order an immediate evacuation of the space if safety equipment fails or if the space becomes, or has the potential to become (i.e., LEL increasing), immediately hazardous.

4.2.1 Vertical Entries Greater Than Five (5) Feet Deep

Mechanical retrieval equipment is required when vertical entries greater than five (5) feet deep are made, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the Entrant. A full body harness shall be attached to the Entrant. If a retrieval system is not practical, the Entrant shall be equipped with a ten (10) minute escape breathing device and a full body harness with shoulder "D-Ring" attachments for emergency evacuation. When electrical hazards are present, non-conducting lifelines shall be used.

4.2.2 Horizontal Entries and Traveling Distances in Permit Spaces

Entrants who must travel significant distances from entry points into a storm drain, reservoir, etc., may do so with the following provisions:

- The Entrant shall carry a ten (10) minute escape breathing device and a gas detector, in addition to the gas detector monitored by the Attendant.
- At the first indication of a dangerous situation or toxic atmosphere, the Entrant must evacuate the space.
- A means of continual communication must be established (e.g., hand signals, light signals, intrinsically safe radios, etc.) between the Entrant and Attendant.

Rescue methods must be identified by the Entry Lead Person and utilized when horizontal entries are conducted.

4.2.3 Entering an Alternate Entry Procedure Permit Space

After evaluating the Permit Required Confined Space, completing the *Confined Space Pre-Entry Checklist* items on the permit, and establishing appropriate controls, the Entry Lead Person may reclassify the permit space to an Alternate Entry Space by checking the appropriate box in Section five (5) of the *Confined Space Entry Permit and record Sheet*. The Entry Lead Person's Supervisor, the City Safety Officer, or Department Safety Officer **must** authorize the reclassification of a Permit Required Confined Space. Each Department that conducts confined space entry is responsible for establishing the mode of approval for reclassification (i.e., verbal or written).

The Entry Lead Person shall indicate that the permit space reclassification was approved by writing the name of the person approving the reclassification, the time approval was given, and the means of

communication for obtaining the approval (e.g., written, phone, in person) in the *Notes and Additional Comments* section of the *Confined Space Entry Permit and Record Sheet*.

When entering the Alternate Entry Confined Space the Entrant shall:

1. Establish and ensure that the mechanical ventilation system is operational, and providing clean, fresh air to the Entrants work location within the space during the entire entry;
2. Test the atmosphere of the permit space prior to entry into the space;
3. Continually operate an appropriate gas detector during the confined space operation;
4. Immediately evacuate the space if the ventilation fails, or if the portable air sampling equipment fails; and
5. Immediately evacuate the space if he/she discovers or becomes aware of a previously unrecognized hazard. If this occurs, the Entry Lead Person (or the Entrant's line supervisor, if the Entrant is also the Entry Lead Person) shall be immediately notified, the entry permit shall be canceled, the permit space shall be re-evaluated by the Entry Lead Person, and appropriate safety precautions implemented prior to resuming the confined space operation.

Note: Authorized Entry Lead Persons may act as Entrants during Alternate Entry Confined Space Operations.

No Attendant or Standby Person is necessary for Alternate Entry procedure entries, except as indicated in the "Note" below (i.e., a single appropriately trained person may enter the space without the assistance of accompanying workers).

Note: When entering an Alternate Entry Confined Space that requires the use of mechanical retrieval device (i.e., an empty and cleaned storage tank that has an opening that cannot accommodate a ladder) for entry or exit, an Attendant must remain at the space during the entire entry operation.

4.2.4 Entering a Non-Permit Confined Space

After evaluating the Permit Required Confined Space, completing the *Confined Space Pre-Entry Checklist* items on the permit, and establishing appropriate controls, the Entry Lead Person may reclassify the permit space to a Non-Permit Required Confined Space by checking the appropriate box in Section Five (5) of the *Confined Space Entry Permit and Record Sheet*. The Entry Lead Person's supervisor, City Safety Officer, or Department Safety Officer must authorize the reclassification of a Permit Required Confined Space.

The Entry Lead Person shall indicate that the permit space reclassification was approved by writing the name of the person approving the reclassification, the time approval was given, and the means of

communication for obtaining the approval (e.g., written, phone, in person, etc.) in the *Notes and Additional Comments* section of the *Confined Space Entry Permit and Record Sheet*.

Employees may enter Non-Permit Required Confined Spaces by following generally acceptable safe work practices. Employees shall not use paints, thinners, or other chemicals; weld or create any other atmospheric or mechanical hazard while working in a Non-Permit Confined Space.

No Attendant or Standby Person is necessary when confined space entry operation trained employees perform non-permit space entries (i.e., a single, appropriately trained person may enter the space without the assistance of accompanying employees).

5.0 ATMOSPHERIC CONTROL

5.1 MONITORING CONFINED SPACE AIR QUALITY

The Entry Lead Person must determine the type of atmospheric hazards present in a permit or alternate entry confined space. Gas detectors typical used for entry into City's confined spaces cannot be used to evaluate atmospheric hazards such as welding fumes, solvent vapors, or excessive heat. Under these conditions, a different air monitoring approach may be necessary.

Prior to entering a permit required or alternate entry confined space, the gas detector shall be prepared by following the manufacturer's recommendations, ensuring that the sampling filter and probe are attached. Procedures for sampling confined space air quality shall be conducted in accordance with the gas detector manufacturer's recommendations.

The air quality of the confined space shall be sampled by slightly opening the access port or by testing the space through a suitable sampling port prior to completely opening the space. The probe should be lowered slowly, allowing time for the instrument to detect atmospheric changes at different heights and locations within the space.

The gas detector shall remain "ON" during the entire entry operation. The Attendant shall inspect the gas detector frequently to ensure proper operation and record readings at least hourly. If any of the following conditions occur, abort entry and report this condition to the Entry Lead Person's supervisor:

- An oxygen reading less than 19.5% or greater than 23.5%;
- A combustible gas reading greater than 9% LEL;
- A H₂S reading greater than 9 ppm; and/or
- A CO reading greater than 24 ppm.

The permit space may be re-entered after conditions return to acceptable concentrations.

Note: After initial testing, logging of results, and proper downgrading of a Permit Required Confined Space, intermittent recording of atmospheric results is not

required during alternate entry procedure or non-permit space entries. Gas detectors are not required for confined spaces that have been reclassified as Non-permit and which do not contain any atmospheric hazards.

5.2 VENTILATING THE CONFINED SPACE

Blower(s) should be set up to provide adequate ventilation for the space. Ensure ventilation air supply is obtained from a clean source (i.e., do not set up near vehicle exhausts). Allow enough time for the blower(s) to clear the permit space atmosphere before entering. Ensure that the blower(s) operate at all times during permit space operations. If a blower fails, Entrants must leave the permit space or alternate entry space until ventilation is reestablished.

6.0 PERMIT REQUIRED CONFINED SPACE EMERGENCY RESCUE

6.1 NON-ENTRY RESCUES

Historically, more rescuers are killed each year attempting rescues than Entrants. Considering this, the preferred method of entry rescue at the City is by using the Long Beach Fire Department. However, if the situation warrants, and rescuers are trained and properly equipped, entry rescue may be attempted. An untrained and unequipped person should never attempt an entry rescue.

In all emergencies requiring personnel rescue, members of a trained rescue team shall perform non-entry rescue, if possible. The Entry Lead Person must anticipate the types of permit space incidents that could occur during a particular permit space entry, prepare and list appropriate emergency procedures on the entry permit, and review the procedures with the Attendant, Entrant, and Standby Person prior to authorizing a permit space entry. Emphasis must be given to planning work so that incapacitated Entrants can be rescued without having to enter the space.

6.2 ENTRY RESCUES

Employees assigned to perform Confined Space Entry Rescue shall be:

- Provided with and trained in the proper use of appropriate personal protective equipment. Employees must be current on all respirator fit tests;
- Trained to perform permit space entry and assigned rescue duties; and
- Required to conduct a practice permit space rescue at least once every 12 months.

Departments relying solely upon the Long Beach Fire Department to conduct permit space rescues shall inform the rescue teams of the confined space hazards that may be confronted. This **must** be completed prior to entry into the confined space. Two fax notifications are required as follows: Station #6 - 570-8073 and Battalion 1 HQ – 570-1487.

7.0 CONFINED SPACE ENTRY PERMITS

Authorization to complete confined space entry permits are to be given to the Entry Lead Person under the supervision of a confined space entry operation trained line supervisor or manager. Canceled and closed permits are to be returned to the supervisor/manager authorizing a permit or to the Bureau's management for filing as directed. Each Department is required to maintain their completed permits for no less than one year.

8.0 CONTRACTOR WORK IN CITY'S' CONFINED SPACES

When contractors will be performing work that involves entry into a City confined space, the City employee, responsible for interfacing with the contractor, shall review the following with the contractor (these items shall be discussed during the "Pre-Construction Meeting"):

- That the space(s) the contractor's employee(s) are going to work in are considered confined spaces and that the entry is allowed only by following an OSHA compliant Confined Space Entry Program;
- Apprise the contractor of identified hazards of the space and the City's' experience with entry into the space;
- Notify the contractor of the City's' precautions and procedures implemented to protect employees entering the confined space;
- Coordinate entry operations with the contractor, when both City personnel and contractor personnel will be working in the permit space at the same time; and
- Debrief the contractor following the entry operation about any hazards confronted or created during entry.

Contractors are authorized to enter City controlled, permit required confined spaces, only by following an OSHA compliant Permit Required Confined Space Entry Program. Contractors must verify that they are following an OSHA compliant program.

Whenever practical, contractors should be informed, through the contract process, of the need for confined space entry procedures that are compliant with Title 8 section 5157.

When co-entering a City controlled confined space, contractors must enter the confined space at a "LEVEL" equal to or greater than the "LEVEL" required by the City.

9.0 CONFINED SPACE ENTRY TRAINING

All employees who are required to enter permit required or alternate entry confined spaces must be trained in the requirements of this program prior to participating in a permit required or alternate entry confined space project. Training must be completed every three (3) years from initial training or every year if entry is accomplished using a Self-Contained Breathing Apparatus.

Attendants and/or Standby persons participating in permit required and alternate entry confined space operations shall be trained in first aid and adult CPR.

City employees that are trained in confined space entry rescue techniques must be trained annually and receive first aid and adult CPR training.